
वस्त्रादि — श्राउड-लैड कपास की रस्सी —
विशिष्टि
(तीसरा पुनरीक्षण)

**Textiles — Shroud-Laid Cotton
Line — Specification**
(*Third Revision*)

ICS 59.080.50

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FOREWORD

This Indian Standard (Third Revision) was adopted by the Bureau of Indian Standards after the draft was finalized by the Cordage Sectional Committee and approved by the Textiles Division Council.

This standard was first published in 1965 and subsequently revised in 1975 and 1987. This revision has been made in the light of experience gained since its publication and to incorporate the following major changes:

- a) Requirement for identification of material has been incorporated;
- b) Marking clause has been modified; and
- c) References to Indian standards have been updated.

The composition of the committee responsible for the formulation of this standard is listed in Annex B.

For the purpose of deciding whether a particular requirement of this standard is complied with, the final value, observed or calculated expressing the result of a test or analysis, shall be rounded off in accordance with IS 2 : 2022 'Rules for rounding off numerical values (*second revision*)'. The number of significant places retained in the rounded off value should be the same as that of the specified value in this standard.

Indian Standard

TEXTILES — SHROUD-LAID COTTON LINE — SPECIFICATION

(*Third Revision*)

1 SCOPE

1.1 This standard prescribes the requirements of five varieties of shroud-laid cotton lines.

2 REFERENCES

The standards listed in Annex A contain provisions which, through reference in this text, constitute provisions of this standard. At the time of publication, the editions indicated were valid. All standards are subject to revision, and parties to agreements based on this standard are encouraged to investigate the possibility of applying the most recent editions of the standards listed in Annex A.

3 TERMINOLOGY

3.1 For the purpose of this standard, the definitions are given in IS 3871 shall apply.

4 ATMOSPHERIC CONDITIONS FOR CONDITIONING AND TESTING

4.1 The tests shall normally be carried out under prevailing atmospheric conditions. In all cases of dispute, however, tests shall be carried out on samples which have been conditioned for 24 h in an atmosphere at (65 ± 2) percent relative humidity and $27 \text{ }^{\circ}\text{C} \pm 2 \text{ }^{\circ}\text{C}$ temperature (*see* IS 6359). Where practicable, tests shall be made in the standard conditioning atmosphere; otherwise, they shall be made as quickly as possible but not exceeding 15 min of removal of the test pieces from the conditioning atmosphere.

5 MANUFACTURE**5.1 Yarn**

Cotton yarn of 60 tex (or 10^s count) shall be used for the manufacture of the lines. It shall be evenly spun and shall be reasonably free from leaf particles, snarls and slubs. The yarns shall have Z-twist.

5.2 Strands

Every strand as far as the number of yarns is concerned shall satisfy the requirements of Table 1. The strands shall be well-formed and free from splices, grooves and sunken yarns. The strands shall have S-lay.

5.3 Lay of Line

The line shall consist of four strands laid in Z-direction.

5.4 Skein

It shall be continuous throughout its length and shall not contain splices and joints. The length of the skein shall be 37 m or as agreed to between the buyer and the seller.

5.5 Rotproofing

If required by the buyer, the lines shall be rotproofed by the application of rotproofing agent in appropriate quantity as agreed to between the buyer and the seller. In case zinc or copper naphthenate is used, the zinc content shall be within 0.8 percent to 1.2 percent and copper content shall be within 0.4 percent to 0.8 percent respectively and the estimation of Zn and Cu shall be done in accordance with IS 3522 (Part 1). The line shall not be treated with starch or any other finishing material which may cause tendering.

5.6 Dyeing

If so, required by the buyer, the lines may be manufactured from dyed yarns and the colour of the line shall be a matter of prior agreement between the buyer and the seller. The dyed line shall be free from stains and patches.

NOTE — The lines if supplied to the defence services, shall be as given below:

<i>Nominal Diameter, mm</i>	<i>Undyed or Dyed</i>
1	Undyed or dyed to olive green or khaki
2	Undyed or dyed to blue or olive green or khaki
4	Undyed or dyed to olive green or khaki
5	-do-
6	-do-

6 REQUIREMENTS**6.1 Fibre Identification**

The material of rope that is cotton fibre shall be identified by the confirmatory test as specified in IS 667.

6.2 The lines shall comply with the requirements of Table 1

Table 1 Requirements for Shroud-Laid Cotton Line
(Clauses 5.2 and 6.2)

Sl No.	Nominal Diameter	No. of Yarns Per Strand	Linear Density	Pitch or Maximum Length of 10 Lays	Breaking Load on Minimum 60 cm Test Length, Min
	mm		ktex	cm	N
(1)	(2)	(3)	(4)	(5)	(6)
i)	1	3	1	3.3	70
ii)	2	8	3	6.6	195
iii)	4	34	11	13.2	785
iv)	5	45	16	16.5	1 125
v)	6	60	21	19.8	1 520
Tolerance	—	—	± 5 percent	—	—
Method of test	IS 7071	—	IS 7071		IS 1670

NOTE — 1 N = 0.102 kgf approximately.

6.3 The other requirements of the line shall be as given in Table 2.

Table 2 Other Requirements of Shroud-Laid Cotton Line
(Clause 6.3)

Sl No.	Characteristic	Requirement	Method of Test
(1)	(2)	(3)	(4)
i)	Colour fastness to:		
	a) Washing, Test 3	4 or better	IS 764 (see Note)
	b) Light	4 or better	IS 2454
	c) Rubbing	3 or better	IS 766
ii)	pH value	6 to 8	IS 1390

NOTE — Using distilled water as the washing liquor instead of soap-soda solution.

7 SAMPLING

7.1 A quantity of skeins of same linear density and same type manufactured under similar conditions and delivered to a buyer against a dispatch note shall constitute a lot.

7.2 The conformity of the lot shall be determined on the basis of the tests carried out on the samples selected from it.

7.3 Sample Size

Sampling shall be as representative as possible of the lot subjected to the measurements and tests. Draw the samples at random at the rate shown by the following formula:

$$S = 0.4 \sqrt{N}$$

where S is the number of skeins selected as sample and N is the size of the lot expressed as number of 37 m skeins. When S as calculated is not a whole number, round off the value obtained to give a whole number in accordance with the requirements of IS 2. In cases where S is less than one draw one sample skein.

7.3.1 For evaluating length of the skein, number of yarns per strand, pitch, linear density, breaking load, colour fastness and pH value the number of skeins selected according to 7.3, shall constitute the test sample.

7.3.2 For evaluating the net mass of the lot, all the skeins in the lot shall constitute the test sample.

7.4 Criteria for Conformity

The lot shall be declared as conforming to the

standard if the following conditions are satisfied:

- a) The length of each skein is not less than the specified length; and
- b) The average values of the test results in respect of other requirements conform to the requirements specified in the standard.

8 PACKING

8.1 Unless otherwise specified, the lines shall be packed conforming to the requirements laid down in IS 3256.

9 MARKING

9.1 Each skein shall have a label securely attached to it on which the following information shall be legibly marked:

- a) Name of the material;
- b) Nominal diameter of the line;
- c) Length and net mass of the skein;
- d) Manufacturer's name, initials or trade-mark;
- e) Month and year of manufacture; and
- f) Any other information required by the law in force and/or by the buyers.

9.2 BIS Certification Marking

The product(s) conforming to the requirements of this standard may be certified as per the conformity assessment schemes under the provisions of the *Bureau of Indian Standards Act, 2016* and the Rules and Regulations framed thereunder, and the products may be marked with the Standard Mark.

ANNEX A
(Clause 2)

LIST OF REFERRED INDIAN STANDARDS

<i>IS No.</i>	<i>Title</i>	<i>IS No.</i>	<i>Title</i>
IS 1670 : 1991	Textiles — Yarn — Determination of breaking load and elongation at break of single strand (<i>second revision</i>)	IS 3871 : 2013	Fibre ropes and cordage — Vocabulary (<i>third revision</i>)
IS 3256 : 1980	Code for inland packaging of ropes and cordages (<i>first revision</i>)	IS 6359 : 2023	Method for conditioning of textiles (<i>first revision</i>)
IS 3522 (Part 1) : 1989	Methods for estimation of common preservatives on textiles: Part 1 (<i>first revision</i>)	IS 7071 : 2021	Fibre ropes — Determination of certain physical and mechanical properties (<i>second revision</i>)

ANNEX B
(Foreword)

COMMITTEE COMPOSITION

Cordage Sectional Committee, TXD 09

<i>Organization</i>	<i>Representative(s)</i>
Indian Institute of Technology, Delhi	DR (PROF) R. CHATTOPADHYAY (Chairperson)
Association of Synthetic Fibre Industries, New Delhi	DR M. S. VERMA
Azuka Synthetics LLP, Panchkula	SHRI SUSHANT GUPTA SHRI DEVRAJ THAKUR (<i>Alternate</i>)
Central Coir Research Institute, Kochi	SHRIMATI SUMI SEBASTIAN DR ANITA JACOB (<i>Alternate</i>)
Central Ordnance Depot, Kanpur	REPRESENTATIVE
Chhotanagpur Rope Works Private Limited, Ranchi	SHRI SIDDHARTH JHAWAR SHRI ANURAG JHAWAR (<i>Alternate</i>)
Coast Guard Headquarters, New Delhi	CMDT NUPUR KULSHRESTHA SHRI D. D. SHARMA (<i>Alternate</i>)
Crown Industries, Kolkata	SHRI SANJEEV AGARWAL SHRI GH BHUNIA (<i>Alternate</i>)
Delta Ropes Manufacturing Company, Kolkata	SHRI ANAND MAJARIA SHRI AAYUSH MAJARIA (<i>Alternate</i>)
Directorate of Quality Assurance (DGQA) (Naval), Delhi	CAPT A. K. SHARMA SHRI G. S. N. MURTHY (<i>Alternate</i>)
Directorate of Quality Assurance (DGQA), New Delhi	SHRI K. I. SINGH
Garware Technical Fibres Limited, Pune	SHRI KISHOR J. DARDA SHRI SATISH J. CHITNIS (<i>Alternate</i>)
Indian Jute Industries Research Association, Kolkata	MS SOUMIATA CHOWDHURY SHRI PARTH SANYAL (<i>Alternate</i>)
Indian Jute Mills Association, Kolkata	SHRI SAMIR KUMAR CHANDRA SHRI BHUDIPTA SAHA (<i>Alternate</i>)
Jayshree Fibre Products Limited, Kolkata	SHRI N. K. SOMANI SHRI MANOJ BIYANI (<i>Alternate</i>)
Kohinoor Ropes Private Limited, Aurangabad	SHRI VINAY CHANDAK SHRI SUNIL BIHANI (<i>Alternate</i>)
National Institute of Natural Fibre Engineering and Technology (ICAR-NINFET), Kolkata	SHRI SURAJIT SENGUPTA SHRI KARTICK SAMANTA (<i>Alternate</i>)

<i>Organization</i>	<i>Representative(s)</i>
Office of the Jute Commissioner, Kolkata	SHRI SOUMYADIPTA DATTA SHRI P. K. BISWAS (<i>Alternate</i>)
Office of the Textile Commissioner, Mumbai	SHRI N. K. SINGH SHRI HUMAYUN K. (<i>Alternate</i>)
Oil and Natural Gas Commission (ONGC), Mumbai	REPRESENTATIVE
Oil India Limited (OIL), Assam	REPRESENTATIVE
Protherm Engineering Private Limited, Faridabad	SHRI RATNESH DEWAN SHRI SANJEEV KUMAR SHARMA (<i>Alternate</i>)
Reliance Industries Limited, Mumbai	SHRI RAJIV GUPTA SHRI KESHAV PAREEK (<i>Alternate</i>)
Shipping Corporation of India Limited, Mumbai	CAPT YOGESH PURI
Thanawala and Company, Mumbai	SHRI HEMAL M. THANAWALA SHRI VIVAAN THANAWALA (<i>Alternate</i>)
Tufropes Private Limited, Silvassa	SHRI ANURAG SARIN SHRI SHASHI BHUSHAN NEGI (<i>Alternate</i>)
BIS Directorate General	SHRI J. K. GUPTA, SCIENTIST 'E'/DIRECTOR AND HEAD (TEXTILES) [REPRESENTING DIRECTOR GENERAL (<i>Ex-officio</i>)]

Member Secretary
SHRI ASHWANI KUMAR
SCIENTIST 'B'/ASSISTANT DIRECTOR
(TEXTILES), BIS

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